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47074 47075 47076 47077 47078 47079 47080 47081 47082 47083 47084 47085 47086 47087 47088 47089 47090 47091 47092 47093 47094 47095 47096 47097 47098 47099 47100 47101 47102 47103 47104 47105 47106 47107 47108 47109 47110 47111 47112 47113 47114 47115 47116 47117 47118 47119 47120 47121 47122 47123 47124 47125 47126 47127 47128 47129 47130 47131 47132 47133 47134 47135 47136 47137 47138 47139 47140 47141 47142 47143 47144 47145 47146 47147 47148 47149 47150 47151 47152 47153 47154 47155 47156 47157 47158 47159 47160 47161 47162 47163 47164 47165 47166 47167 47168 47169 47170 47171 47172 47173 47174 47175 47176 47177 47178 47179 47180 47181 47182 47183 47184 47185 47186 47187 47188 47189 47190 47191 47192 47193 47194 47195 47196 47197 47198 47199 47200 47201 47202 47203 47204 47205 47206 47207 47208 47209 47210 47211 47212 47213 47214 47215 47216 47217 47218 47219 47220 47221 47222 47223 47224 47225 47226 47227 47228 47229 47230 47231 47232 47233 47234 47235 47236 47237 47238 47239 47240 47241 47242 47243 47244 47245 47246 47247 47248 47249 47250 47251 47252 47253 47254 47255 47256 47257 47258 47259 47260 47261 47262 47263 47264 47265 47266 47267 47268 47269 47270 47271 47272 47273 47274 47275 47276 47277 47278 47279 47280 47281 47282 47283 47284 47285 47286 47287 47288 47289 47290 47291 47292 47293 47294 47295 47296 47297 47298 47299 47300 47301 47302 47303 47304 47305 47306 47307 47308 47309 47310 47311 47312 47313 47314 47315 47316 47317 47318 47319 47320 47321 47322 47323 47324 47325 47326 47327 47328 47329 47330 47331 47332 47333 47334 47335 47336 47337 47338 47339 47340 47341 47342 47343 47344 47345 47346 47347 47348 47349 47350 47351 47352 47353 47354 47355 47356 47357 47358 47359 47360 47361 47362 47363 47364 47365 47366 47367 47368 47369 47370 47371 47372 47373 47374 47375 47376 47377 47378 47379 47380 47381 47382 47383 47384 47385 47386 47387 47388 47389 47390 47391 47392 47393 47394 47395 47396 47397 47398 47399 47400 47401 47402 47403 47404 47405 47406 47407 47408 47409 47410 47411 47412 47413 47414 47415 47416 47417 47418 47419 47420 47421 47422 47423 47424 47425 47426 47427 47428 47429 47430 47431 47432 47433 47434 47435 47436 47437 47438 47439 47440 47441 47442 47443 47444 47445 47446 47447 47448 47449 47450 47451 47452 47453 47454 47455 47456 47457 47458 47459 47460 47461 47462 47463 47464 47465 47466 47467 47468 47469 47470 47471 47472 47473 47474 47475 47476 47477 47478 47479 47480 47481 47482 47483 47484 47485 47486 47487 47488 47489 47490 47491 47492 47493 47494 47495 47496 47497 47498 47499 47500 47501 47502 47503 47504 47505 47506 47507 47508 47509 47510 47511 47512 47513 47514 47515 47516 47517 47518 47519 47520 47521 47522 47523 47524 47525 47526 47527 47528 47529 47530 47531 47532 47533 47534 47535 47536 47537 47538 47539 47540 47541 47542 47543 47544 47545 47546 47547 47548 47549 47550 47551 47552 47553 47554 47555 47556 47557 47558 47559 47560 47561 47562 47563 47564 47565 47566 47567 47568 47569 47570 47571 47572 47573 47574 47575 47576 47577 47578 47579 47580 47581 47582 47583 47584 47585 47586 47587 47588 47589 47590 47591 47592 47593 47594 47595 47596 47597 47598 47599 47600 47601 47602 47603 47604 47605 47606 47607 47608 47609 47610 47611 47612 47613 47614 47615 47616 47617 47618 47619 47620 47621 47622 47623 47624 47625 47626 47627 47628 47629 47630 47631 47632 47633 47634 47635 47636 47637 47638 47639 47640 47641 47642 47643 47644 47645 47646 47647 47648 47649 47650 47651 47652 47653 47654 47655 47656 47657 47658 47659 47660 47661 47662 47663 47664 47665 47666 47667 47668 47669 47670 47671 47672 47673 47674 47675 47676 47677 47678 47679 47680 47681 47682 47683 47684 47685 47686 47687 47688 47689 47690 47691 47692 47693 47694 47695 47696 47697 47698 47699 47700 47701 47702 47703 47704 47705 47706 47707 47708 47709 47710 47711 47712 47713 47714 47715 47716 47717 47718 47719 47720 47721 47722 47723 47724 47725 47726 47727 47728 47729 47730 47731 47732 47733 47734 47735 47736 47737 47738 47739 47740 47741 47742 47743 47744 47745 47746 47747 47748 47749 47750 47751 47752 47753 47754 47755

## Instruction formats

i = instruction opcode  
a = register (r0-3, r13-16)  
b = register (r0-3, r13-16)  
5 c = register (r0-3, r13-16)  
h = register high (r0-r31)  
q = condition code  
u = unsigned immediate  
s = signed immediate

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Op	Format	Instruction	Operands	Comment
0	iiiiqqssssssss	bal/beq/bne	s8	; if cc pc=(pc&0xffffffffc)+(s8<<1)
	iiii11qqssssss	bgt/bge/blt/ble	s6	; if cc pc=(pc&0xffffffffc)+(s6<<1)
1	iiisssssssss	bl	s10	; blink=pc; pc=(pc&0xffffffffc)+(s10<<2)
15	2	iiiaaabbiiiii op	a,a,b	; op = sub/and/or/xor/asl/asr/lsr/
			a,b,1	; asl1/asr1/
			a,b,2	; asl2/asr2/
			0,a,b	; and.f/mul64/?/?/s_op
		iiiaaaaii1111 s_op	a,a	; s_op=extb/extw/sexb/sew/
20			[a]	; j/jl/
			a,a,a	; sub.ne/i_op
		iiiii11111111 i_op3		; i_op=brk/j [blink]/st blink[sp,4]/
	3	iiiaaaaiuuuuu mov/cmp	a,u6	
	4	iiiaaaaiuuuuu add/sub/?/?	a,a,u5	
25	5	iiiaaaahhh00hh mov	a,h	
		iiiaaaahhh01hh add	a,a,h	
		iiiaaaahhh11hh mov/cmp	h,a	
	6	iiiaaaa000iuuu ld/st	a,[fp, -u3]	; a=mem[fp - (u3 << 2)]
		iiiaaaa001iuuu add/?	a,[fp, -u3]	; a=fp - (u3 << 2)
30		iiiaaaaiuuuuu asl/asr/lsr	a,a,u5	
	7	iiiaaaabbbuuuu ld	a,[b,u4]	; a=mem[b + (u4<<2)]
	8	iiiaaaabbbuuuu ldb	a,[b,u4]	; a=mem[b + u4]
	9	iiiaaaabbbuuuu ldw	a,[b,u4]	; a=mem[b + (u4<<1)]
	A	iiiaaaabbbuuuu st	a,[b,u4]	; a=mem[b + (u4<<2)]
35	B	iiiaaaabbb0uuu stb	a,[b,u3]	; a=mem[b + u3]
		iiiaaaabbb1uuu stw	a,[b,u3]	; a=mem[b + (u3<<1)]
	C	iiiaaaabbbiuuu add/sub	a,b,u3	; a=b op u3
	D	iiiaaaauuuuuu ld	a,[pc,u7]	; a=mem[(pc&0xffffffffc)+(u7 << 2)]
	E	iiiaaaauuuuuu ld	a,[gp,u7]	; a=mem[gp + (u7 << 2)]
40	F	iiixxxxxxxxx reserved		

### Other possible formats:

	iiiaaaabbb0ccc	ld	a,[b, c]	; a=mem[b + c]
	iiiaaaabbb1ccc	add	a,b,c	; a=b+c
45	iiiaaaauuuuuu	add	a,pc,u7	; a=(pc&0xffffffffc)+ (u7 << 2)